

1974-80

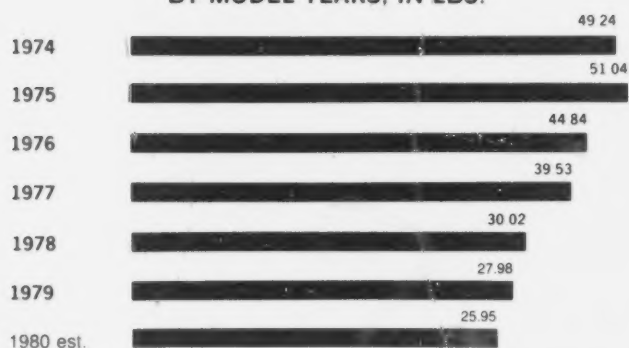
**U.S. AUTOMOTIVE
MARKET FOR
ZINC DIE CASTING**

Zinc Institute Inc.

292 Madison Ave., New York, NY 10017

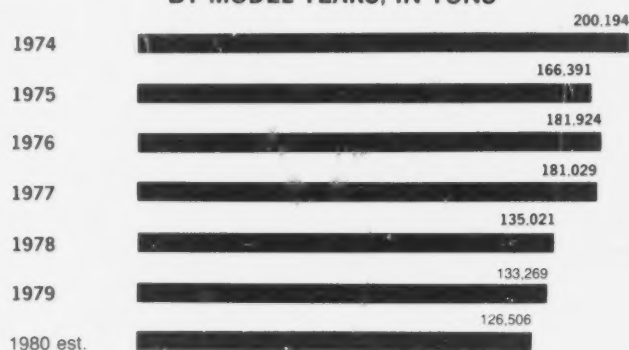
17080 Masonic, Fraser, MI 48026

AVERAGE ZINC D.C. MARKET BY MODEL YEARS, IN LBS.



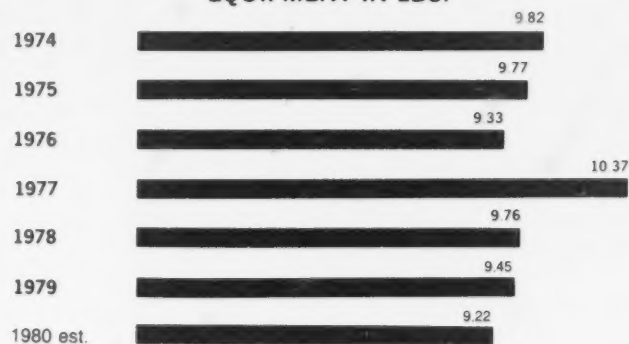
This graph shows the weight of zinc die castings in the average car for the model years listed. The decline is due to substitution and/or elimination of parts, and increased use of ThinWall zinc die castings. Use of ThinWall zinc has increased from a few applications in 1974 through 1978 to about 150 on the 1979's and over 170 on the 1980's. The average includes optional equipment.

TOTAL ZINC D.C. MARKET BY MODEL YEARS, IN TONS



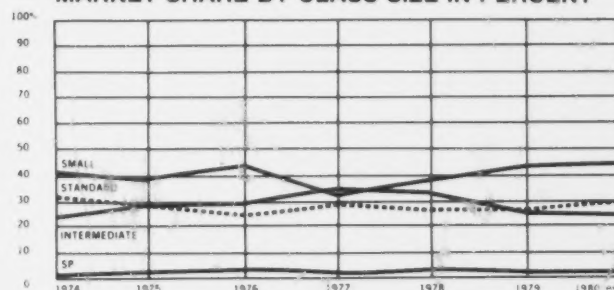
This chart is based on Zinc Institute's annual model year automotive die casting survey. The number of vehicles manufactured in the United States, including vans, have been multiplied by the average weight of zinc die castings per vehicle resulting in the tonnages shown above. No after market production or truck use is included in these figures. It has been estimated that trucks use between 15 and 20 pounds of zinc per vehicle and after market die castings account for 3 to 5 pounds per average vehicle.

AVERAGE ZINC D.C. OPTIONAL EQUIPMENT IN LBS.



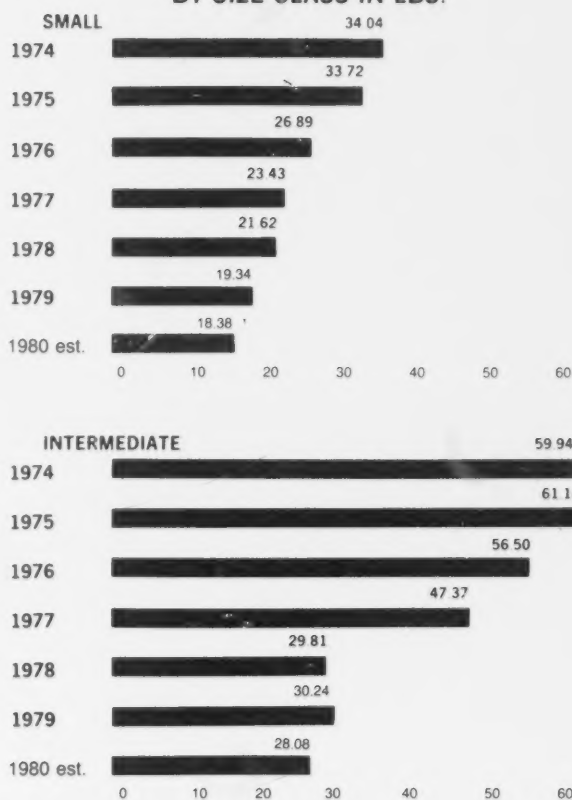
Economy-consciousness does not mean devoid of luxury to most American car buyers. The vast majority order a car with automatic transmission, power steering, power brakes, steel radial tires and remote control sideview mirrors for an added measure of safety. Well over half of all car buyers order optional air conditioning. Based on 4 pounds of optional equipment on the small cars, 11½ pounds on the intermediates and 16 pounds on the standard size cars, the weighted average for each year is depicted on the above graph. It is apparent the options ordered for the small cars will increase in the future, resulting in a greater average value.

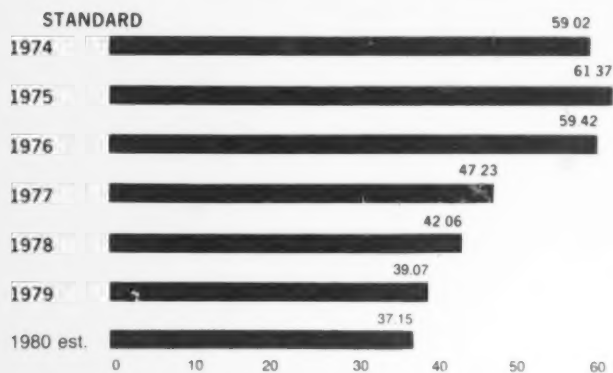
MARKET SHARE BY CLASS SIZE IN PERCENT



With the move to increased gas mileage to meet government regulations the small and intermediate size cars will tend to dominate the market. The standard size vehicle, although downsized, will be lower in demand. With the projected higher cost of gasoline the consumer will feel a need to economize, or to buy a more fuel efficient car. However, no matter how many small cars the industry builds, they will have little impact on energy conservation if the individual has no economic incentive to buy them or to drive more efficiently.

AVERAGE ZINC D.C. MARKET BY SIZE CLASS IN LBS.

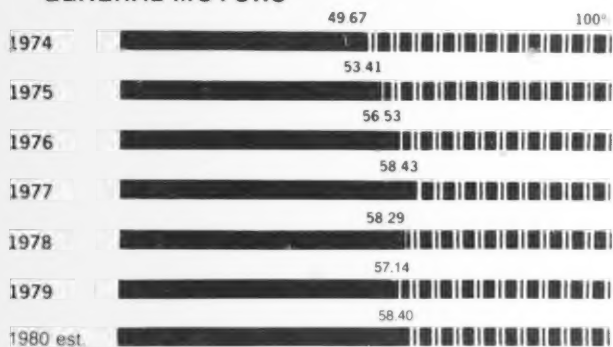




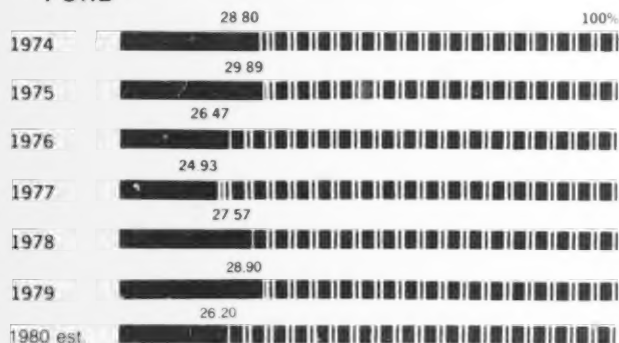
The small cars never did use very many zinc die castings. The intermediates and standards held up well until 1977 and dropped in 1978 mainly due to General Motors downsizing its entire line. The slight difference between the figures shown for 1978 and 1979 models indicates an apparent bottoming out in the three traditional size classes.

**MARKET SHARE BY MANUFACTURER
IN PERCENT**

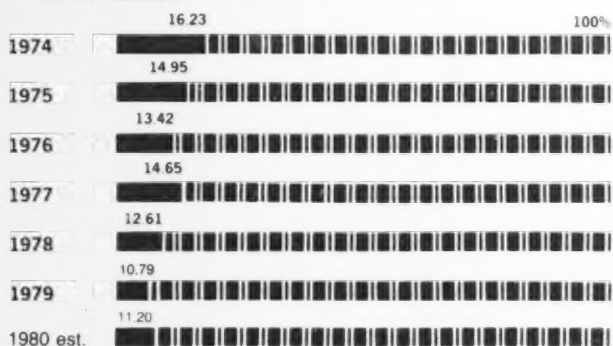
GENERAL MOTORS



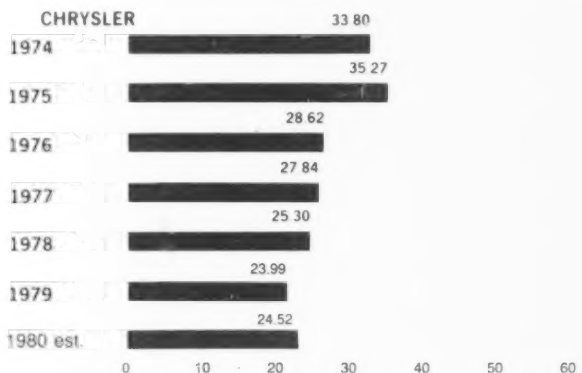
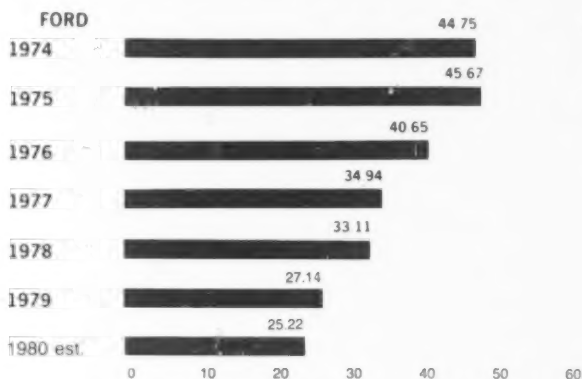
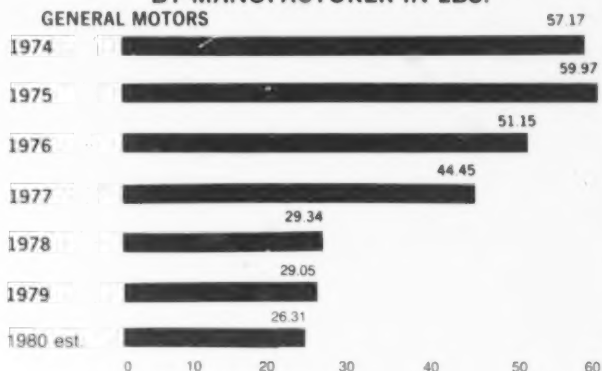
FORD



CHRYSLER



**AVERAGE ZINC D.C. MARKET
BY MANUFACTURER IN LBS.**



The average zinc die casting usage per vehicle by manufacturer is illustrated in the above chart. Always the largest due to its market dominance, General Motors buys the lion's share of automotive zinc die castings. This is still true for 1980, in spite of three years of drastic redesign and downsizing of standard and intermediates. Number two in automotive production, Ford is also second largest purchaser of automotive zinc die castings. Chrysler's use of zinc die castings per vehicle has remained relatively constant for the last four years. American Motors uses more zinc die castings on their average vehicle when compared to the other automotive manufacturers. For 1980 this amounts to 32.89 lbs.

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